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What is claimed is:

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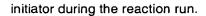
A copolymer comprising:

- 4 to 50 percent by weight of (meth)acrylic acid units; and
- b) from 50 to 95 percent by weight of at least one non-acid ethylenically unsaturated monomer.
- 2. The copolymer of claim 1 comprising at least 10 percent by weight of (meth)acrylic acid units.
- 3. The copolymer of claim 1 comprising at least 15 percent by weight of (meth)acrylic acid units.
- 4. The copolymer of claim 1 wherein said non-acid ethylenically unsaturated monomer is selected from the group consisting of styrene, vinyl acetate, methyl methacrylate, butyl acrylate, methyl acrylate, acrylonitrile, isopropylacrylamide, and mixtures thereof.
- 5. The copolymer of claim 1 wherein said copolymer is a block copolymer.
- 6. The copolymer of claim 1 wherein said polymer is a random copolymer.
- 7. The copolymer of claim 1 wherein said polymer is a tapered block copolymer.
- 8. The copolymer of claim 1 wherein said copolymer has a weight average molecular weight of from 1,000 to 100,000.
 - 9. 'A single stage free radical retrograde precipitation polymerization process for producing a copolymer comprising:
 - a) admixing

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- 1) a solvent,
- 2) a free-radical-forming agent,
- 3) (meth)acrylic acid,
- 4) and at least one non-acid/ethylenically unsaturated monomer;
- b) initiating a free-radical precipitation polymerization to form a plurality of polymer radicals;
- 25 c) precipitating a copolymer from said polymer radicals;
 - d) maintaining the admixture of reactants at a temperature above the lower critical solution temperature of said admixture; and
 - e) controlling the reaction conditions of said admixture to control the rate of propagation of the polymer.
- 30 10. The process of claim 9 further comprising a delayed and/or continuous feed of monomer and

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- 11. The process of claim 9 wherein said non-acid ethylenically unsaturated monomer is selected from the group consisting of styrene, vinyl acetate, methylmethacrylate, butyl acrylate, methyl acrylate, acrylonitrile, and isopropylacrylamide.
- 5 12. The process of claim 9 wherein said copolymer is formed from monomers having reactivity ratios between 0.001 and 100.
 - 13. A free radical retrograde precipitation polymerization process for producing a block copolymer comprising:
 - a) admixing
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- 1) a solvent,
- 2) a free-radical-forming agent,
- 3) at least one ethylenically unsaturated monomer;
- b) initiating a free-radical precipitation polymerization to form a plurality of polymer radicals;
- c) precipitating a polymer from said polymer ragicals;
- d) maintaining the admixture of reactants at a temperature above the lower critical solution temperature of said admixture;
- e) controlling the reaction conditions of said admixture to control the rate of propagation of the polymer;
- f) rapidly cooling the reactor contents to below the lower critical solution temperature, following at least 3 times the initiator half life to produce the first monomer into polymer,
- g) admixing a second monomer mixture containing at least one ethylenically unsaturated monomer into the cooled reactor contents;
- h) heating the reactor contents above the lower critical solution temperature to continue polymerization.
- 25 14. The process of claim 13 wherein said rapid cooling occurs by removing the reactor contents through a cooled tube and into a second vessel.